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09/945,051	08/31/2001	Wan-Chol Ho	YPLEE8.001AUS	3048

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EXAMINER
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HOLLOWAY III, EDWIN C

ART UNIT	PAPER NUMBER
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2635

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/945,051

Applicant(s)

HO ET AL.

Examiner

Edwin C. Holloway, III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5,7-9,12 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5,7-9,12 and 14-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Examiner's Response***

1. In response to applicant's amendment filed 4-21-04, all the amendments to the specification and claims have been entered. The examiner has considered the new presentation of claims and applicant's arguments in view of the disclosure and the present state of the prior art. And it is the examiner's opinion that the claims are unpatentable for the reasons set forth in this Office action:

***Claim Rejections - 35 USC § 102 & 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 5, 7, 9, 12, 14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arisawa (US 6567694) in view of Haykin (text book: Communication Systems, Second Edition) and MacLellan (US 5649296).

In reference to claim 5, Arisawa teaches of a base station transmitting data to and receiving data from an external mobile station, the base station comprising:

A base station communication controller (10) for processing data including control data to output a predetermined data frame;  
A base station interfacer (8) for receiving a modulated uplink

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signal from the mobile station and transmitting a modulated downlink signal to the mobile station

A base station demodulator (27) for demodulating the output signal of the mixer to generate a base band signal according to a predetermined demodulation method;

A base station source decoder (10 includes ability to encode/decode data stream, Col 4, lines 64-67) for receiving the base band signal from the base station demodulator and performing source decoding according to a predetermined method;

A base station source coder (10 includes ability to encode/decode data stream, Col 4, lines 64-67) for performing source coding the data frame output from the base station communication controller;

A base station modulator (17, 18) for modulating the output data of the base station source coder according to a predetermined method and outputting modulated data to the base station interfacer.

Arisawa does not teach of:

A mixer for mixing the modulated uplink signal with a predetermined intermediated frequency and filtering the mixed signal to convert the modulated uplink signal to a signal having the predetermined intermediate frequency

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An oscillator for generating the predetermined intermediate frequency.

Haykin teaches that it is well known in the art to employ the use of a mixer and oscillator for moving a signal from one frequency to another in order reduce the cost of transmitter/receiver equipment by performing signal processing on signals of standard frequency. After signal processing then signal is mixed upon a higher frequency signal for transmission over a medium.

It would have been obvious to one skilled in the art at the time of invention to use a mixer to mix the modulated uplink signal with a predetermined intermediate frequency to bring the frequency of the modulated signal to that of the intermediate frequency if the higher transmission frequency caused the signal processing equipment to become prohibitively expensive because such modulation techniques are well known and apply to all RF systems.

Further in reference to claim 5, Arisawa does not teach of transmitting a modulated signal for a predetermined time and then transmitting a predetermined frequency until a response is received from the mobile station. MacLellan suggests that in

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RFID systems using Half Duplex techniques it is common to transmit an interrogation signal then transmit a continuous wave radio signal to the tag using modulated backscattering (MBS) (Col 1, lines 25-35).

In reference to claim 12, Arisawa teaches of a data communication method of a base station transmitting data to and receiving data from an external mobile station, the steps taught as in claim 5, but Arisawa does not teach of transmitting a modulated signal for a predetermined time and then transmitting a predetermined frequency until a response is received from the mobile station. Claim 12 is taught similar to claim 6 above. It would have been obvious to one skilled in the art at the time of invention to transmit a signal according to the above claims because interrogation and continuous wave radio signals are common to MBS systems.

In reference to claim 7, claim 5 is taught as above. Arisawa teaches that the base station demodulator performs differential phase shift keying demodulation (Col 5, lines 22-30), and the base station modulator performs amplitude shift keying modulation (Col 4, lines 13-18).

In reference to claim 9, claim 5 is taught as above. Arisawa teaches that the base station demodulator performs demodulation

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of the DPSK/ASK modulated signal similar to claim 7 above. Arisawa does not teach of the components that comprise the demodulation. Where Arisawa is not specific about the demodulation being done it is because of the differing types of modulation schemes that he has provided. It is understood that if Arisawa were to choose a DPSK/ASK modulation scheme then an appropriate ASK/DPSK demodulation would have to take place in order to recover the original signal.

It would have been obvious to one skilled in the art at the time of invention to include amplitude limiting amplifiers, amplitude comparators, phase shifters and a quadrature detection receiver for demodulating the original signal when the original signal is DPSK/ASK modulated because Arisawa suggests the use of DPSK/ASK modulation and thus ASK/DPSK demodulation and one skilled in the art at the time of invention would have used the components listed to perform the required demodulation.

In reference to claim 14, Arisawa does not teach of an electronic toll collecting system. Toll collecting systems are well known in the art to employ non-contact IC cards that perform data communications. Claim 14 is taught similar to claims 5.

It would have been obvious to one skilled in the art at the time

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of invention to use Arisawa's communication system to effect a toll collecting system since toll collecting systems are known to use contactless RF communication devices in order to facilitate driver convenience.

In reference to claim 16, claim 14 is taught as above. Claim 16 is taught similar to claim 3 above.

In reference to claim 17, claim 14 is taught as above. Claim 17 is taught similar to claim 4 above.

In reference to claim 18, claim 14 is taught as above. Claim 18 is taught similar to claim 9 above.

4. Claims 8, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arisawa (US 6567694) in view of Haykin (text book: Communication Systems, Second Edition) and MacLellan (US 5649296) as applied above and further in view of Grindahl (US 4799059).

In reference to claim 8, claim 5 is taught as above. Arisawa does not teach that the mobile station source coder performs coding according to a Manchester coding method, and the mobile station source decoder performs decoding according to a Manchester decoding method. Arisawa does teach of using non-return-to-zero (NRZ) bit encoding (Col 4, lines 64-67).

Grindahl suggests that Manchester encoders are well known and

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produce a code in which a data clock is embedded into the data stream.

In reference to claim 15, claim 14 is taught as above. Claim 15 is taught similar to claim 8 above.

It would have been obvious to one skilled in the art at the time of invention to exchange the NRZ encoding scheme of Arisawa with the Manchester coding of Grindahl because Grindahl suggests that they are exchangeable (Col 9, lines 57-59). In addition, it is well known that NRZ encoding schemes also embed a data clock in the data stream and provide similar functionality to Manchester encoding.

#### ***Response to Arguments***

5. Applicant's arguments filed 4-21-04 have been fully considered but they are not persuasive. Applicant argues that MacLellan modulates the CW signal using modulated backscattering, thus the CW signal transmitted from the interrogator to the tag in MacLellan has no relation to a carrier signal used for modulating a data signal in the tag. The examiner disagrees because the backscatter modulation of MacLellan uses the interrogation signal as the carrier. Col. 4 lines 20-57 of MacLellan discloses modulating the information signal on subcarrier at frequency  $f_2$  (similar to applicant's first frequency) and then modulating this signal on the CW

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carrier frequency  $f_1$  (similar to applicant's second frequency) resulting in a signal in the range  $(f_1 - f_2)$  to  $(f_1 + f_2)$ . This signal has clear relation the frequency  $f_1$  of the CW signal. The frequency  $f_1$  is the carrier. Applicant is referred to Sharpe (US 5448242) for disclosure of a transponder system with explanation of backscatter modulation in col. 3.

### **Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Marsh (US 5537105) discloses an interrogator that interrupts the interrogation signal after successful receipt of identification from a transponder.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

#### **CONTACT INFORMATION**


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact an Electronic Business Center (EBC) representatives at 703-305-3028 or toll free at 866-217-9197 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at [ebc@uspto.gov](mailto:ebc@uspto.gov). The Patent EBC is a complete customer service center that supports all Patent e-business products and service applications. Additional information is available on the Patent EBC Web site at <http://www.uspto.gov/ebc/index.html>.

Any inquiry of a general nature should be directed to the Technology Center 2600 receptionist at (703) 305-4700 or TC 2600 Customer Service at (703) 306-0377.

Facsimile submissions may be sent via fax number (703) 872-9306 to customer service for entry by technical support staff. Questions regarding fax submissions should be directed to customer service voice line (703) 306-0377.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edwin C. Holloway, III whose telephone number is (703) 305-4818. The examiner can normally be reached on M-F (8:30-5:00). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on (703) 305-4704.

EH  
7/7/04

  
EDWIN C. HOLLOWAY, III  
PRIMARY EXAMINER  
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